



AMS Tracker Thermal Control Subsystem TTCB proof pressure test procedure

AMSTR-NLR-PR-026
ISSUE 01
FEBRUARY 2009

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FILENAME	AMSTR-NLR-PR-026_TTCB_Proof_pressure_test_procedure.doc	ORDER-/CODENUMBER:	2494047
LAST SAVED	2009.02.13 02:56 by jvanes	DIVISION:	AS&A
PRINTED	2009.10.08 22:54	DISTRIBUTION:	Unlimited
PAGES	18	CLASSIFICATION TITLE:	Unclassified

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Document change log

<u>Change Ref.</u>	<u>Section(s)</u>	<u>Issue 1.0</u>
-	All	Initial issue based partly on PR-040



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Summary

This document describes the proof pressure test of the TTCB, the complete assembled component box of the TTCS. The document includes procedure sheets to be filled in during testing.



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1 Scope of the document

The procedure in this document describes the proof pressure test of the TTCS component box, TTCB. The TTCB proof pressure test will be preceded and succeeded by a He leak test to verify the integrity of the TTCB components and welds.

2 References documents

	Title	Number	Date
RD-1	QM-FM condenser He leak & proof pressure procedures_iss01	AMSTR-NLR-TN-040-Issue 1.0	June 2008



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3 Description of the item under test

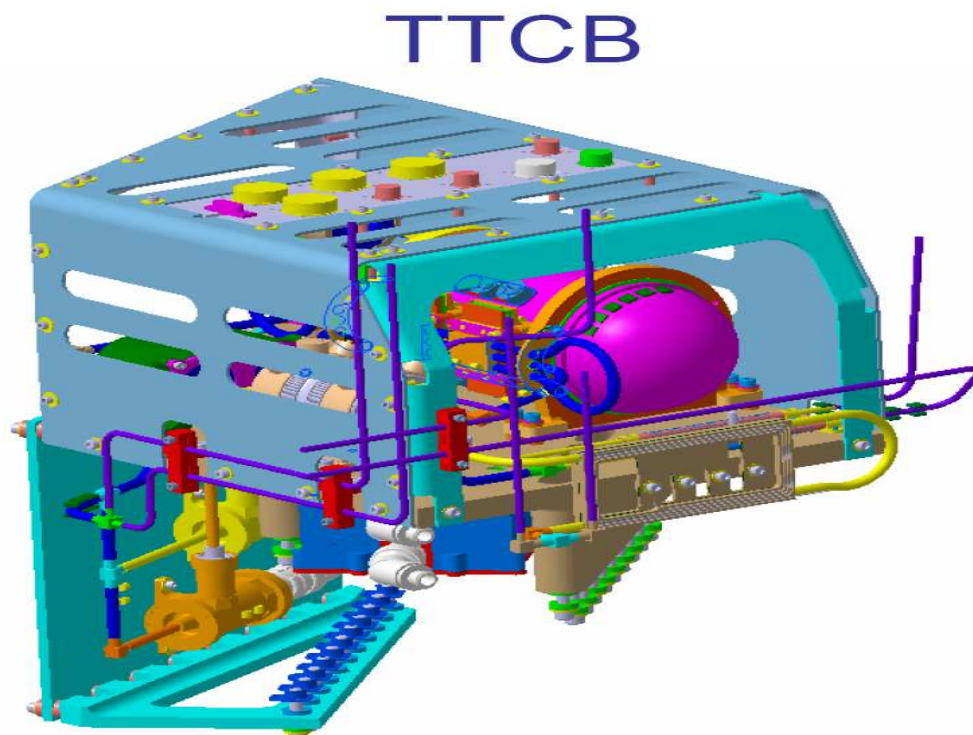


Figure 3-1: TTCB primary without additional tubing for He leak test and proof pressure test.

For the proof pressure test additional tubing must be used for connecting the TTCB inlet and outlet tubes in such way the pump is connected to the proof pressure equipment from both sides. This to prevent difficulties with pressurizing or venting the TTCB after proof pressure test.

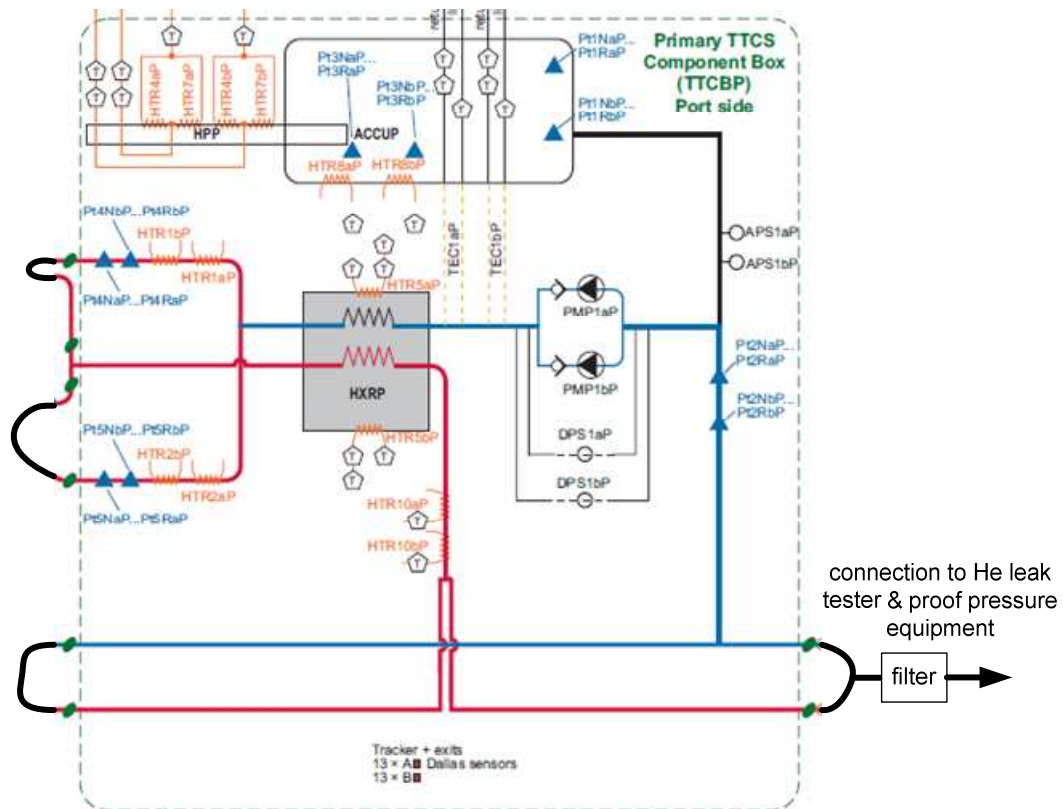


Figure 3-2: TTCB schematic with additional tubing for He leak test & proof pressure test

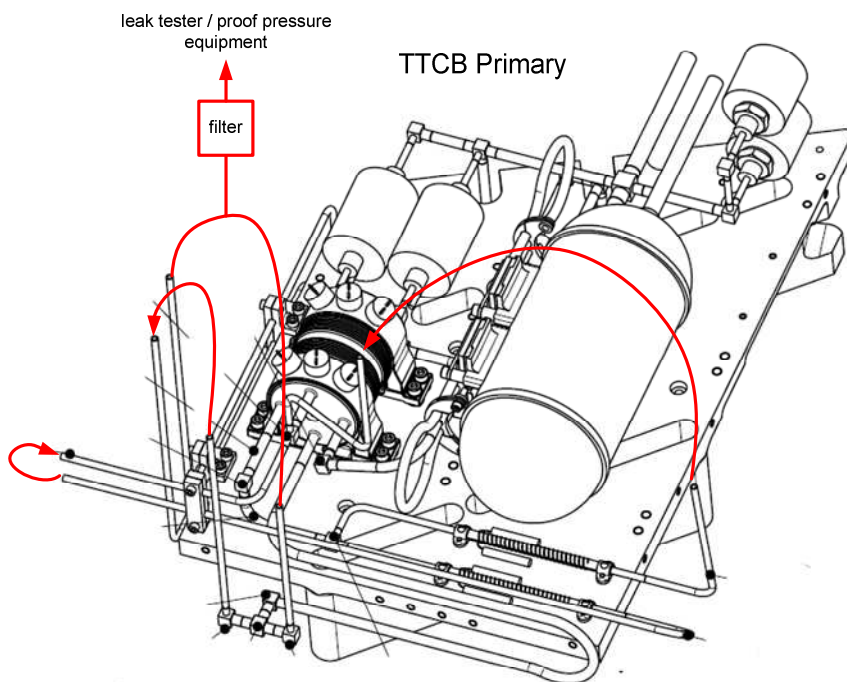


Figure 3-3: TTCB primary with additional tubing for He leak test and proof pressure test.

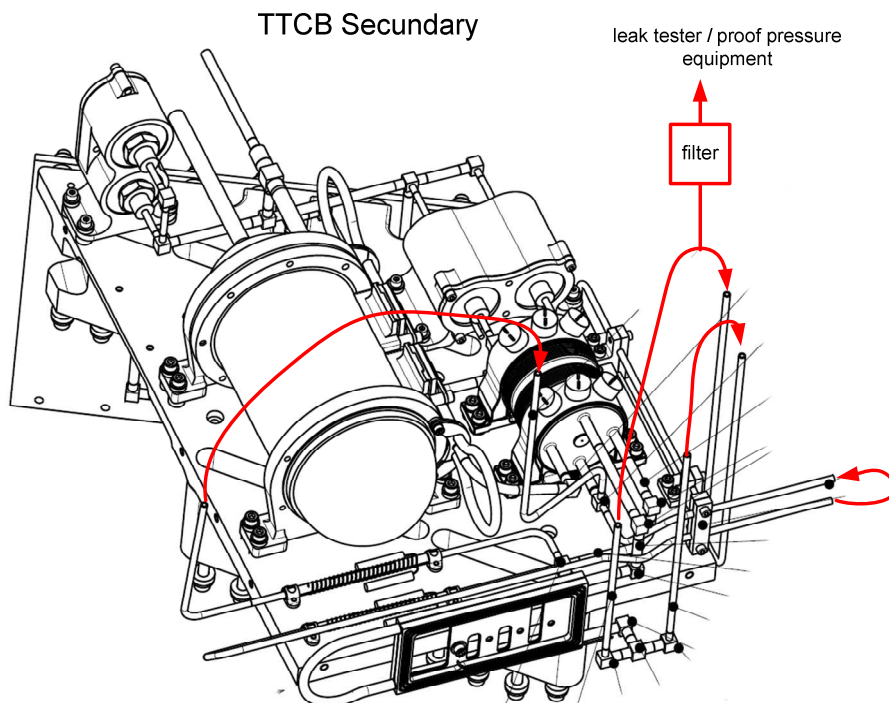


Figure 3-4: TTCB secondary with additional tubing for He leak test and proof pressure test.

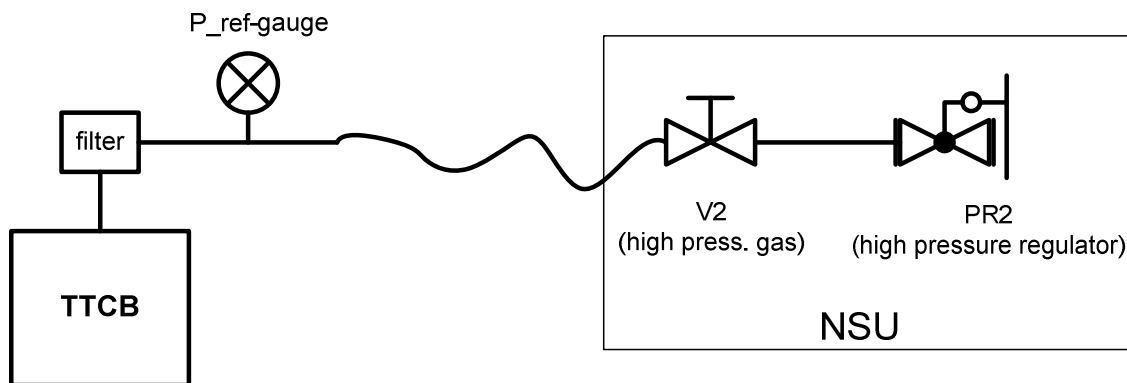


Figure 0-3: Schematic of connection TTCB and the nitrogen service unit

The main steps of the proof pressure test:

1. Connect tubes to connection tubes of TTCB (fig. 3-3 or fig. 3-4), same as He leak test set-up.
2. Connect TTCB to NSU as depicted in figure 4-3
3. For cleanliness put TTCB in clean enclosure.
4. Perform proof pressure test.
5. Controlled venting of TTCB also using NSU PR2.



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3.1 TTCB proof pressure test procedure sheet

	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
1.	Record Test Item description.	T.I. description	-			
2.	Record model (QM / FM-P / FM-S)	model	-			
3.	Verify TTCB tube are short circuit like depicted in figure 3-3 for primary or 3-4 secondary, so TTCB consist out of 1 pressure compartment.					
4.	Visual inspection and make photo's. Write down picture time and/or picture filename					
5.	Put TTCB in clean enclosure, e.g. plastic foil					
6.	Record test equipment and fluid used	Manufacturer, type/serial number	1.2 K-AV 04 II Nitrogen			
7.	Connect the NSU to the TTCB as depicted in figure 4-3					
8.	If no p-transducer is available, all pressure values and corresponding times have to be logged manually, else filling in the 11 bold lines in					



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	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
	table below and logging to data file is sufficient.					
9.	Increase pressure slowly to 240 bar/ 3480 Psi by adjusting pressure regulator PR2. Rate of pressure change < 25 bar / minute	Pressure change Time	<25bar/min seconds			
10.	Record pressure and elapsed time. In case values p-transducer are logged only bold values need to be recorded.	Pressure [Psi] / elapsed time	200 / t [s] 300 / t [s] 400 / t [s] 500 / t [s] 600 / t [s] 700 / t [s] 800 / t [s] 900 / t [s] 1000 / t [s] 1100 / t [s] 1200 / t [s] 1300 / t [s] 1400 / t [s] 1500 / t [s] 1600 / t [s]			



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	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
			1700 / t [s]			
			1800 / t [s]			
			1900 / t [s]			
			2000 / t [s]			
			2100 / t [s]			
			2200 / t [s]			
			2300 / t [s]			
			2400 / t [s]			
			2500 / t [s]			
			2600 / t [s]			
			2700 / t [s]			
			2800 / t [s]			
			2900 / t [s]			
			3000 / t [s]			
			3100 / t [s]			
			3200 / t [s]			
			3300 / t [s]			
			3400 / t [s]			
			3480 / t [s]			



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	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
11.	Maintain the pressure of 240 bar for 10 minutes.	Pressure Time	240 bar / 3480 PSI 10 min.			
12.	Decrease pressure slowly to 1 bar/ 14.5 Psi by adjusting pressure regulator PR2. Rate of change < 25 bar / minute	Pressure change Time	<25bar/min seconds			
13.		Pressure [Psi] / time	3480 / t [s] 3400 / t [s] 3300 / t [s] 3200 / t [s] 3100 / t [s] 3000 / t [s] 2900 / t [s] 2800 / t [s] 2700 / t [s] 2600 / t [s] 2500 / t [s] 2400 / t [s] 2300 / t [s] 2200 / t [s]			



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	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
			2100 / t [s] 2000 / t [s] 1900 / t [s] 1800 / t [s] 1700 / t [s] 1600 / t [s] 1500 / t [s] 1400 / t [s] 1300 / t [s] 1200 / t [s] 1100 / t [s] 1000 / t [s] 900 / t [s] 800 / t [s] 700 / t [s] 600 / t [s] 500 / t [s] 400 / t [s] 300 / t [s]			



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	Proof pressure test procedure sheet TTCB		company:		date:	
	Fill in by hand.		engineer:		location:	
Step	Action	Monitoring	Value	Result	Comment	√
			200 / t [s] 100 / t [s] 0 / t [s]			
14.	Disconnect TTCB and seal open tubes with plug / cap					
15.	End					



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